Migration to the Flipped Classroom – Applying a Scalable Flipped Classroom Arrangement

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Structured Abstract

Purpose – This paper is part of an extensive project[1] which focusses on creating and implementing a scalable flipped classroom framework to broaden information and media competencies in university staff in Saxony. A flipped classroom arrangement with a sensible mix of multimedia tools promotes meaningful learning and lowers travel costs by avoiding content consumption in face-to-face time and instead offers content beforehand using various sources. This paper will in particular focus on the approach to gradually apply a flipped classroom arrangement to a B2B-Marketing course specifically designed for part-time students and use the implications to promote this method and further the step-by-step migration to the flipped classroom at universities in Saxony.

Design/methodology/approach – Gathering information by reviewing previous experiences in E-Learning over the past decade, we were able to create an overview of how to approach part-time students and identified various concepts to create a more flexible and meaningful learning environment. We decided on a flipped classroom arrangement which offers time sensible teaching and promotes meaningful learning. A flipped classroom framework has been created which can be adjusted freely. Finally, we implemented the framework to a B2B-Marketing course by adapting it to the course content, time frame and attendance number. This procedure is designed to gradually increase usage of multi media tools and self efficacy and thereby steadily migrates the course to the flipped classroom.

Originality/value – Focussing on part-time students' needs and satisfying them with a flipped classroom arrangement is an entirely new approach. This project connects parttime- learning with online learning in a yet unprecedented manner.

1 MigraFlipScale sponsored by Saxon State Ministry for Higher Education, Research and the Arts

Practical implications – This paper describes the project's two main outcomes. Firstly, an independent scalable framework which can be adapted to different learners' and teachers' needs. Secondly, the application strategy is described in detail and offers explicit indications and methods to implement the flipped classroom gradually. Also, there will be an evaluation which will be interpreted and summarized in a guideline as well as patterns and lessons learned. In general, this project aims to broaden media and information competencies and encourage and strengthen collaboration in higher education in Saxony.

Keywords – Flipped Classroom, Online Education, ICM, E-Learning, Part-Time learning

Paper type – Practical Paper

1 Introduction

Most university courses aim to provide a high number of students with large quantities of information. Most teachers revert to handing out extensive materials in big lecture halls and give recitation (Butt, A., 2014, Cassidy, S., 2011). That leaves the students to deal with the main part of learning and understanding alone and out of reach of the teacher. Introducing the flipped classroom method to any course or content offers the opportunity to further meaningful learning as well as provide flexibility to both learner and teacher and provide opportunity for learning among participants from diverse disciplines and locations (Arbaugh, J.B., 2000). How should a course be organised to satisfy all participants' needs for transparency, coaching, organizational flexibility and success in learning?

This paper provides the reader with explicit techniques and methods to plan and implement a flipped classroom arrangement successfully. These methods are based on a literature review and an extensive knowledge base we derived over the past decade from numerous practical blended learning arrangements at our institutions (Lerche, J., 2015); they also represent a theoretical approach which has been implemented and will be evaluated during this semester.

2 Designing the scalable Flipped Classroom Framework

The flipped classroom method enables the teacher to shift the data-driven part of the lecture outside of class to make room for meaningful learning in class and evolve from a one dimensional mediator to an actual partner in learning (Bull, G., Ferster, B., Kjellstrom, W., 2012; Handke, J., 2013; Koh, C., 2016). In addition, the flipped classroom offers numerous opportunities to allow part time and distance learning because it leaves the student free to decide how, when, where and for how long they work on the material (Schäfer, A. M., 2012).

Following the three cycles of design science combined with our proceedings through the cycles (Hevner. A., 2007), we were able to compile a scalable framework (Jantos, A., Heinz, M., Schoop, E., Sonntag, R., 2016). Consequently, we describe the prototype design which, under ideal circumstances, creates a learner-centred environment providing steady input via an online platform, regular face-to-face meeting opportunities to broaden and intensify the learning, and both online and personal feedback as well as peer review and self assessment. Figure 1 shows the scalable flipped classroom framework with its' five phases.

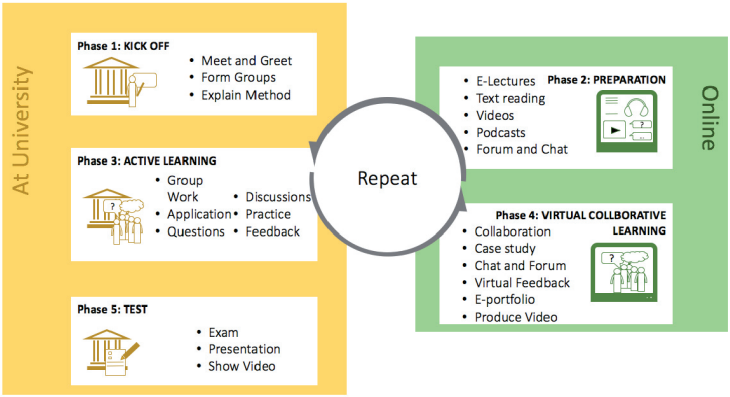

Figure 1: Design of the scalable Flipped Classroom Framework

To ensure stable learning success, the didactical design for the scalable framework for part-time students follows a more flexible and time-saving way with successive phases that ensure constant steady learning with comparatively long preparation phases and face-to-face session which are spread evenly over the learning period (Handke, J., 2013). The kick-off phase gives teachers and learners the opportunity to get acquainted with each other and with the flipped classroom method. Teachers give an overview of the upcoming phases and their challenges. They form groups and introduce the media that are going to be used. Preparation phase enables the learner to get acquainted with the topic by consuming contents specially prepared for the coming phases. The active learning phase offers educational space for varied learning activities. Teachers function as tutors, coaches, guides or moderators to oversee and encourage the transmission of meaning. In Virtual Collaborative Learning (VCL), learners check their understanding with reflexion tools and extend their learning (Balázs, I.E., Schoop, E., 2004). Phases 2, 3, and 4 are supposed to be repeated regularly until the course aims are met. The organisation of the cycle will depend

on the scope of the course in general as well as on the number of students and the available time frame to finish the course. All of the activities taking place on this platform can be monitored by Learning Analytics to assist the e-tutor and increasing transparency for all participants (Long, P., Siemens, G., 2011). The course ends with either the obligatory exam or with any other kind of learning artefact, such as a video presentation or a personal presentation, which is assessed by the teacher with consideration of online and face-to-face interaction and e-portfolio work.

3 Application

The University of Applied Sciences Dresden offers a part-time course in B2BMarketing with 5 ECTS points awarded to every student who is enrolled in a business Master program. The course is addressed to master students in their first semester. All participants were expected to have fundamental knowledge of multimedia usage and basic knowledge of Business and Management. They were expected to be between 20 and 30 years of age and to have previous experiences with various teaching and learning methods. This course was chosen for the trial run of the research as it had not yet been planned and offered a suitable subject and a promising audience.

Applying the framework to an actual course, required research to be carried out with more specific focus on the target group. Various factors that influence students learning in virtual classroom situations have been identified. Students show a rather non-independent behaviour in new learning environments. Most students find coordination and communication in teams to be the main challenge in online learning and prefer detailed guidance as they work on their assignments and frequently ask for help regarding content and organisation (Jödicke, C., Schoop, E., Freudenreich, R., Lorenz, T., Claus, T., Schuster, E., and Kawalek, J., 2014).

An interview with Prof. Dr. Ralph Sonntag at the University of Applied Sciences Dresden, who will be teaching the B2B-Marketing course in question showed that the target audience is even less self-efficacious. He pointed out that students usually participate passively in lectures delivered in big lecture halls. Group work is usually not a part of regular courses and an interaction with the lecturer is not common. The professor reported that it is necessary to introduce the new approach of teaching slowly and gradually to ease the audience into the new learning and teaching style because he feared that the slightest obstacle would scare students off. He suggests to clearly point out that there is much to be gained by this change and students should be constantly motivated to make sure they are aware of the opportunity and willing to take a risk. Based on the literature review and the information above a shortlist of today's students' needs was possible to be compiled:

- Students demand higher flexibility in learning (Lübben, S., Müskens, W., Zawacki-Richter, O., 2015);
- They are less willing to travel to lectures or study groups (Lübben, S. et al 2015);
- They ask for learner-centred learning and teaching (Minks, K.-H., Netz, N., Völk, D., 2011);
- They need transparent organisation of time and place (Minks, K.-H. et al 2011);
- They want to use multimedia as a crucial part;
- They require frequent help and motivation (Jödicke, C. et al, 2014).

Even though there is a great number of issues which affects learning and learning organisation, time proves to be the main factor (Maschwitz, A., Brinkmann, K., 2015). Most of these issues amplify when working with part-time students. They frequently face the following issues when they study part-time (Fischer, M., Spannagel, C., 2012):

- They have a fulltime job but still want to study;
- They rely on income from the daytime job;
- They take care of family members such as elderly or children;
- They cope with illnesses or disabilities;
- They have to commute to attend classes.

Within the kick-off session, we handed out a questionnaire which identified several factors about the actual audience. It contained questions concerning the students' online behaviour and preferences in online tools as well as their employment and degrees. The class counted 30 students. All of them show very high affinity to social media (Facebook) and online video (Youtube) consumption (90%). The following online tools turned out to be merely used (neither passively nor actively) by our focus group (20%-30%): blogs, file-sharing, photo-sharing and Wikipedia. About 50% of the audience are employed and consequently study part-time. All of the participants have a bachelor's degree in business.

Table 1: Organisation of B2B-Marketing

Phase	Content	Methods	Duration
Kick Off	Introduction to B2B-Marketing	- meet and greet - short lecture by the professor to introduce the flipped classroom method - introduction to B2B-Marketing	90 Minutes
1.Online Preparation	Organization and Processes in B2BMarketing	- links to videos and literature send via email - task to submit 2 questions via email	7 Days
1. Face-to-Face Session		- form groups - small group work - discussion and feedback - professor moderates discussions	120 Minutes
2. Online Preparation	Buying behaviour and customer benefit	- videos, literature and e-lectures available on - interactive social media learning platform - submit at least 2 questions via blog or comment	14 Days
2. Face-to-Face Session		- short lecture to address questions - group work - short student presentation - discussion, feedback	120 Minutes
3. Online Preparation	Different kind of Businesses	- videos, literature and e-lectures via platform - small online group work, concept map, e-portfolio, - submit at least 2 questions via email	14 Days
3. Face-to-Face Session		- short student presentation - discussion, lecture, feedback	120 Minutes
4. Online Preparation	Marketing Mix	- videos and literature via platform - VCL to create case study - write e-portfolio	14 Days
4. Face-to-Face Session		- short student presentation - discussion, lecture, feedback	120 Minutes
5. Online Preparation	Trade Marketing	- videos via platform - VCL - e-portfolio - peer review artefacts and e-portfolio - prepare interview	14 Days
5. Face-to-Face Session		- students interview expert - discussion, feedback	120 Minutes
6. Online Preparation	Quality Management	- literature and videos via platform - create videos - VCL, cooperate on platform - e-portfolio - peer review artefacts and e-portfolio	14 Days
6. Face-to-Face Session		- short student presentation - discussion, feedback	120 Minutes
7. Online Preparation	Customer Relationship Management	- students' videos via platform - e-portfolio - peer review	14 Days
Final Session		- feedback - summary - peer review	180 Minutes

Table 1 shows the detailed plan for this semester's course in B2B-Marketing. It consists of eight face-to-face sessions which include the kick-off session in the beginning and the final session in the very end. The course load was designed to fit 150 working hours. Also visible are the seven sequenced online preparation phases which are placed right between the face-to-face sessions.

We gradually raise the learners' autonomy by changing the tasks accordingly with the progress of this course. Figure 2 shows that with passing time we have arranged 1779 learning opportunities with increasing complexity and virtuality to address all taxonomy levels (Bloom, 1956). Face-to-face sessions are depicted as orange diamonds. Accordingly, orange bars show activities in face-to-face session. Green arrows show virtual or asynchronous activities, which can be worked on at home. On the right you find the taxonomy levels arranged according to their autonomy in learning. As you can see, autonomy increases over time, as do the taxonomy levels, which we aim to address.

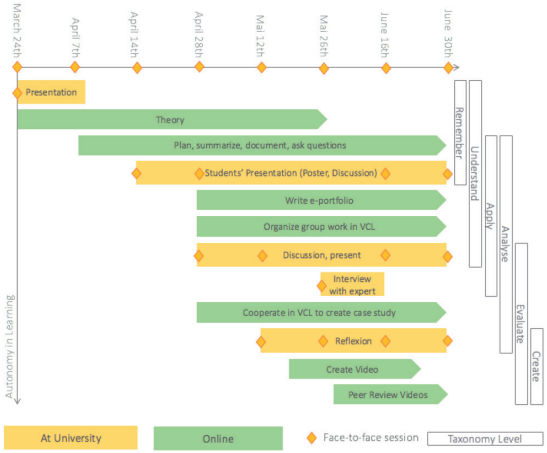

Figure 2: Learners' Autonomy in different Stages of the Course

Knowledge acquisition takes place in online preparation phases. E-tutors and Learning Analytic techniques identify problems and analyse their source to address them in face-toface sessions (Long, P., Siemens, G., 2011).

For the knowledge consolidation in the face-to-face session we have prepared several techniques for group work and active learning in big crowds, such as: case studies, pro and contra debates, poster creation and jeopardy question rounds. Face-2-face

sessions will be video-taped and provided online for those who could not attend the session. Thus, we hope to create content and give students the opportunity to watch themselves and improve their presentation technique.

These face-to-face techniques are going to be intensified with the progression of the course. Soft and less intimidating forms will suffice for the first two sessions but more complex and demanding tasks will be part of the active learning as the course progresses to increase meaningful, autonomous, and self-efficacious learning (Boekaerts, M., 1999). This progression will be mirrored in the online preparation work as there will be more reflexion of the learning progress as well as peer review and self assessment of all artefacts.

The final task in this course will be the creation of a video in group work showing the work in progress of the collaborative work online and all artefacts the group will have worked on. This video will serve other teams as content delivery in future and will be subject for grading the teams – together with any other artefact they have submitted and a detailed evaluation by the teacher. Each group submits the video they produced and other teams are required to review and feedback those videos. The following list describes each and every technique that has been or will be part of B2B-Marketing this semester:

Presentation – Face-to-face sessions are spread evenly over the entire learning period (March to June). Prof. Sonntag will start every face-to-face session with a short introduction and will address the submitted questions to connect the theory based preparation over the past weeks with the upcoming knowledge consolidation. In the very first session (kick off) he took more time to introduce the new teaching and learning method and gave an introduction to B2B-Marketing and focused on motivating the students to stay open to this new approach. He also talked about new media and the challenges and opportunity they bring. Autonomy in learning is low and students participate passively. We address taxonomy levels remembering and understanding.

Theory – Information acquisition mainly takes place by the means of e-lectures, videos and literature in preparation phases. In the very first online phase we provided content using an e-mail to keep it simple and not to overwhelm students. This creates a bridge between preparation and application and offers the teacher to address these questions and watch the students' progress. Students must be prepared to really participate in the active learning so we will not provide any content delivery while meeting face-to-face. Individual links for each student help to keep track of who visited the document and when. Autonomy in learning is low and students consume content passively. We address taxonomy levels remembering and understanding.

Plan, summarise, document, ask questions – Starting April 8th we introduced a social media platform (elgg) to the course which offers all necessary tools to cooperate and create an online community in this course (Rietze, M., Jödicke, C., Jung, M., Tawileh, W., 2013). Students are required to plan and organise their learning regularly. Content is provided without any assistance on how to process the new information. However, we ask students to each submit questions concerning the content to be addressed in the following face-to-face session. They use the online platform to navigate through their theory and accompanying tasks. We organised all participants in virtual groups and offered them a portal to communicate freely in their own group or to the whole course as well as to individuals such as the e-tutor or the professor. We upload all necessary material such as videos, literature, and tasks to this platform. We thereby offer the opportunity to share experiences and knowledge among all participants. Autonomy in learning is higher. Students participate more actively and apply and analyse their knowledge.

Students' Presentation – In every face-to-face session, students take part in group work. The course counts 30 students who are divided into six groups with each five members. They are faced with case studies or current events to be worked on using the information they gathered in online preparation. Students will work autonomously with help and guidance by the tutor. They then present their findings.

Virtual Collaborative Learning – To intensify group work even further, we offer VCL which will focus on the creation of a case study by student teams (Balázs, I.E., 2005) and will be monitored and supervised by e-tutors who are fully trained in pedagogics and marketing. They will chaperone the students throughout the course and offer help and feedback (Jödicke, C. et al, 2014). Every interaction within this collaboration will be monitored by the means of Learning Analytics to create a picture of all existing connections between all group members to identify strong bonds or participants who are not integrated in the collaboration (Rietze, M., Hetmank, C., 2016; Tawileh, W., 2016). Students work very independently as they apply and analyse their knowledge in teams.

E-portfolio – Previous sessions as well as learning artefact, student's presentations, and the progress in the VCL are evaluated separately or in groups by means of peer assessment and e-portfolios (Andrade, H., Valtcheva, A., 2009; Snow, A., M., 2013). Autonomy in learning is high.

Interview with expert – We organised a meeting with an expert in one of the face-toface sessions. He will be part of a discussion and agreed to be interviewed. Students will be asked to prepare for this interview in the preceding online phase and

independently research interesting background stories or issues his company faced in the past. The result will be available in following courses as content in preparation.

Create video – Students design input for knowledge acquisition for the other teams by presenting their group work via video. They produce videos with sensible content and thereby consolidate their knowledge as well as their pedagogical and technological skills (Dinse de Salas, S., Spannagel, C., Rohlfs, C., 2016). Learners' autonomy is very high as students create their own learning artefact.

Peer Review of videos – Students cross review other teams' videos autonomously on a video-based learning environment (Vi-Lab) by annotating specific sections of the video and giving detailed feedback (Seidel, N., 2014).

We focussed on enriching this courses content in face-to-face session with realistic and application-oriented cases studies (and various pedagogical concepts to intensify knowledge consolidation and to keep the students motivated and involved.

We shall evaluate the results of this particular course and hope to improve the framework further. Learning Analytics will be used to monitor every student's performance and based on the aggregated interactions we can evaluate the adaptability of the flipped classroom arrangement and the chosen methods to this course. If needed, we will refocus our efforts to different methods, organisational tactics or content. We hope to achieve better results for future application of the flipped classroom framework to other courses. We shall use the results for redesign and adjustments of the methods and tools we suggested above.

4 Problems

While applying the framework to the B2B-Marketing course we faced a great number of problems which arose both on teacher's and students' side, regarding to the content of the course as well as its organisation and technology. Firstly, there were legal issues to be dealt with. Some universities obligate their students to attend all sessions to get the credit and thereby don't allow working from home. We did not face that particular problem in this case, but still were forced to ensure that this approach was in fact legally acceptable.

Secondly, professors might not wish to merely be moderator or coach in learning – they are used to their position in front of the class and are not necessarily comfortable with this approach. They might also fear loss of image because the visibility of the course decreases. Furthermore, they have to cope with the additional workload to apply the flipped classroom and face new challenges in didactics, technology, and organisation.

Thirdly, we assumed a lot of commitment from the students, which can not be depended on universally. Students might not want to change their learning habits or fear the additional work triggered by this new approach. They might prefer the regular teaching methods and be reluctant to put dedication into this new approach.

Fourthly, even though most people use new media, we can not take it for granted, yet, that every student has proper access to all sorts of media. There are no requirements for students to own technological devices or have the know-how on online collaborative work.

5 Conclusions and further proceedings

We have found that applying a new framework to an actual course creates a number of difficulties and are therefore interested in the outcomes of this trial run and are positive that a flipped classroom actually provides many advantages to new learning methods and the ever changing needs of today's students. But of course, this demands not only learning processes on students' but also on teachers' and course designers' side.

We will increase the effort to use Learning Analytics to identify problems early to notify the e-tutors before participants have to ask for help themselves and thereby achieve higher and more complex educational objects and promote sensible usage of all available online cooperation tools.

After our current prototype is evaluated, we intend to apply our scalable framework gradually to other courses and to spread the method of flipping a course further. In future, we also see a high relevance for the business world. A transfer of the suggested framework to learning-on-the-job situations seems promising. On the conference, we plan to present first results of our practical project in forms of lessons learned and discuss the potential of our approach for transfer into further educational and business qualification scenarios.

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